



STATE OF UTAH  
DEPARTMENT OF HEALTH

NORMAN H. BANGERTE, GOVERNOR

SUZANNE DANDY, M.D., M.P.H., EXECUTIVE DIRECTOR

August 9, 1985  
533-6146

RECEIVED

AUG 13 1985

DIVISION OF OIL  
GAS & MINING

Mr. John Sprague  
General Manager  
Barrick Mercur Gold Mines Inc.  
P.O. Box 838  
Tooele, Utah 84074-0838

RE: Barrick Mercur Gold Mine  
Heap Leach Operation  
Heap No. 1  
Construction Permit

Dear Mr. Sprague:

We have reviewed the plans and specifications for heap no. 1 of your leaching operations and find that they comply with the Code of Waste Disposal Regulations and therefore, a construction permit as constituted by this letter is hereby issued subject to the following conditions:

1. Notification must be given to this Bureau prior to commencing the laying of the 18 inch clay aggregate leak detection liner so appropriate inspections can be arranged.
2. Written notification must be submitted to this Bureau when the leaching operations have been completed and the dump has been pumped essentially dry.
3. If a leak is detected all leaching operations must cease and the Bureau must be notified verbally within 24 hours and in writing within 7 days of the detection of the leak. A contingency plan describing in detail what actions will be taken to mitigate the impacts of the leakage from the barren solution or pregnant solution lines and/or liner must be submitted to the Bureau within 14 days of the receipt of this letter.
4. Once the leaching operations have been completed the following procedure must be followed to insure that no water from the dump enters the ground water or surface water:
  - A. The dump will be neutralized by spraying until the cyanide concentration in the water pumped from the dump is less than 5 parts per million.
  - B. A cap will be placed on the dump consisting of 1 foot of clay aggregate material, covered by 3 feet of subsoil, covered by 1 foot of top soil. The cap when completed shall be sloped so water will run off the cap and be directed into the surface runoff diversion ditches.

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- C. The heap will be pumped until the free drainable liquid in the dump has been removed.
5. During construction of the clay aggregate liner field tests shall be conducted according to the following requirements which are based on a minimum of 2 lifts. We require that a maximum of 100 foot grid per lift be used to test the Atterburg limits and gradation and a maximum of 50 foot grid per lift be used to test compaction. A random sample location within each grid square shall be chosen for the test. This method should yield approximately 100 tests for Atterburg limits and gradation and 400 tests for compaction. In addition we will require at least 24 permeability tests randomly located in a 200 foot by 100 foot rectangle grid system per lift. The results of these tests must be submitted to the Bureau for review.
  6. Gradation tests shall be conducted on the clay aggregate material at the rate of 10 tests per day while it is being placed and the results submitted to the Bureau.
  7. A field seam, as outlined in the specifications, or equivalent must be provided for the overlap of the geomembrane at the midslope anchorage ditch.
  8. The processed clay aggregate material containing 3 inch maximum size will be placed only in the first lift of the 18 inch clay aggregate leak detection liner. All remaining lifts shall contain no material larger than 1 inch in size.
  9. The clay aggregate material used to construct the 18 inch leak detection liner should have at least 35% by weight passing the no. 200 sieve.
  10. Per phone conversation with Mr. John Sprague of Barrick Mining on August 6, 1985 one foot of large granular sand containing no more than 20 per cent sag mill reject rock one inch maximum size shall be placed between the top geotextile material and the ore to be leached on the flatter bottom areas but not on the steeper side slopes.

The heap leach dump approved by this permit is approximately 800 feet long, 600 feet wide and a maximum of 115 feet high. The dump shall be entirely underlain by the following liner/leak detection systems which will direct all leakage to a leak detection sump.

- (a) Under the lower level where the ore will be approximately 90 feet thick or greater there will be from the top down:

- (1) 127 Mil geotextile equivalent to 1155 fabric.
- (2) 40 mil geomembrane HDPE
- (3) Drainage net equivalent to XB8300 NSB.
- (4) 127 mil geotextile equivalent to 1155 fabric.
- (5) 18 inches of compacted clay aggregate.

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(b) Under the upper level where the ore will be approximately 90 feet thick or less there will be from the top down.

- (1) 127 mil geotextile equivalent to 1155 Fabric.
- (2) 40 mil geomembrane HDPE.
- (3) 127 mil geotextile equivalent to 1155 Fabric.
- (4) 18 inches of compacted clay aggregate.

The leak detection sump will be monitored on a regular daily basis by the crew assigned to operate the dump.

A trough system lined with clay aggregate will be constructed under all pregnant liquor and barren solution lines of sufficient size to contain any spillage and which will direct any spillage into the heap leach dump.

The 18 inch leak detection liner will be constructed of clay aggregate with no material larger than 1 inch except as noted in condition no. 8 and a coefficient of permeability of no greater than  $10^{-7}$  cm per second.

It should be understood that this permit applies only to the leach dump described herein. Any additions to this dump or additional heap leach dumps will require a separate construction permit.

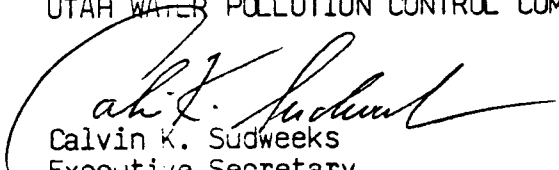
We are advising you that, according to Federal Law, any increase of cyanide, arsenic, or heavy metals in ground water or surface water above background level due to this dump may cause the dump to be listed on the national priority list of hazardous substances sites by EPA pursuant to the Comprehensive Environmental Response Compensation Liability Act (CERCLA).

All wastes not exempt under the mining exemption will need to be managed in accordance with Utah's Hazardous Waste Management Regulations (i.e. spent solvents, off specification cyanide, and chemicals etc.).

We appreciate the cooperativeness and professionalism of your staff with regards to our review of this project. Please call Mr. Charlie Dietz of our staff if there are any questions.

Sincerely,

UTAH WATER POLLUTION CONTROL COMMITTEE



Calvin K. Sudweeks  
Executive Secretary

OGD/LBM:tf

cc: Glenn Eurick, Barrick Mining  
Tooele County Health Department  
Loren Morton  
Tom Suchoski, Oil, Gas, and Mining

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